

EDITORIAL

Antibiotics, Skill and Judgment

*"Of late, without the least pretence to skill,
Ward's grown a famed physician by a pill."*

WHILE BROWSING THROUGH some old books one evening not long ago we came upon the above satirical lines from Alexander Pope. Pope's life had been a continuous round of suffering with asthma, and, having failed to find relief in treatment by the accepted physicians of his day, he succumbed to the entreaties of friends and finally employed the notorious quack, "Spot" Ward, to prescribe for him. Ward, whose success as a quack had brought him a fortune, employed a "universal remedy"—a highly dangerous compound of antimony; but in Pope's case he was entirely unsuccessful save for inspiring the thought-provoking lines quoted above.

There are many today who employ the antibiotics as a "universal remedy" much as Spot Ward used antimony in 1744, and when health is restored the beneficence of Nature is misinterpreted as the physician's skill. This injudicious use of antibiotics not only breaks faith with our professional heritage but endangers the well-being of our patients and the educational attitudes of our developing physicians.

From the outset the dramatic nature of the antibiotic drugs led to unwarranted enthusiasm for their use. This attitude was not properly dissipated by the inevitable disappointment in any panacea, for each time a stable evaluation of a given antibiotic was about to be reached a newer drug of broader antimicrobial activity was optimistically heralded. The search for new antibiotics still goes on but each discovery makes it more difficult to find a new one that has any advantages over those already in use. The consequences and harmful effects from the indiscriminate use of antibiotics are becoming increasingly apparent as the populace of our nation receives in one form or another approximately 360 tons of

penicillin, 250 tons of streptomycin and 300 tons of tetracyclines and chloramphenicol yearly, not to mention erythromycin, neomycin and others. It has been estimated that at present less than 5 per cent of all antimicrobial drugs is administered on proper clinical indications. The rest is wasted on minor respiratory infections which are generally viral in origin and not susceptible to the administered antibiotic, on inconsequential infections on surface areas of the body, in illusory attempts at prophylaxis of bacterial infections, and in unnecessary combinations of drugs.

Jawetz¹ and Rantz² have classified the harmful results of the indiscriminate use of antibiotics into the following broad categories: (1) hypersensitivity and direct toxicity, (2) development of resistance of bacteria to antibiotics, and (3) the emergence of serious infections by organisms which were unknown previously or (4) "superinfection," presumably resulting from antibiotic-induced alterations in the normal body flora.

Hypersensitivity and direct toxic reactions can occur with any antibiotic agent. These reactions occur after either topical or systemic administration. Fortunately, most side effects are transient and subside when the offending agent is discontinued. Oftentimes this hypersensitive state has been produced by the unnecessary administration of antibiotics for an insignificant ailment, such as a cut, bruise, cold, abrasion, or minor surgical procedure; and subsequently the person who receives it for so little reason may have his welfare endangered because he cannot be given indicated antibiotic therapy at a time of serious need. Physicians must constantly guard against this misuse of invaluable agents.

Initially over 90 per cent of all strains of staphylococci were sensitive to even small doses of penicillin. At present, 50 to 90 per cent of pathogenic staphylococci, particularly those in and around hospital air

and dust, are resistant to penicillin. These same organisms have also rapidly become resistant to the tetracyclines and erythromycin. New antimicrobial agents are constantly being sought since mortality from staphylococcal sepsis has again risen inordinately as a result of unyielding bacterial resistance consequent to the unwarranted use of antimicrobial agents.

The emergence of serious infections by unknown organisms and the associated problem of "super-infection" are particularly noteworthy in the urinary, pulmonary and intestinal tracts. So common has this clinical entity become that it must always be suspected when the patient does not respond to antimicrobial therapy in the predicted fashion. The control of these secondary or superinfections often-times requires the closest cooperation between the clinician and the laboratory in defining the offending organism and finding a way to control it. Control of these difficult infections has led to further hazards in

antibiotic therapy, for physicians are tempted to use multiple antibiotic agents in such circumstances. It has been demonstrated that one antibiotic agent may actually diminish the effectiveness of another agent, and complex problems of bacterial antagonism and synergism result from injudicious use of antibiotic agents.

The time has come when physicians must take cognizance again of the laws of Nature in the control of infection and the development of immunity, and search out the true values of their skill, knowledge and judgment. The understanding of these laws will safeguard better the welfare of their patients than the indiscriminate use of the "antibiotic pill" or injection.

REFERENCES

1. Jawetz, E.: American Review of Medicine, Section on Infectious Diseases, 1954.
2. Rantz, L. A.: Consequences of the widespread use of antibiotics, Calif. Med., 81:1, July 1, 1954.

Editorial Comment . . .

Problems of Research on Smog

TO SPEAK OF THE PROBLEMS and difficulties in medical research on smog seems to denote a rather negativistic approach. However, considering the nature of some of the comments in the press and some of the programs on radio and television, it appears that a recapitulation of the difficulties and problems and a wholesome balancing of our approach to the problem is quite in order. Much of the material in the press and on radio and television would lead us to believe that the whole problem can be simply solved by abolishing all the sources of smog. This is undoubtedly true but the improbability of accomplishment is great. The press, radio and television convey to the public only the information given them by the groups interested in smog abatement, both from the research angle and the administrative angle.

Due to the lack of coordinated effort and the lack of interchange of information, it appears as though each group would be entirely satisfied if only its specific problems were solved. As an example, if the substance in the atmosphere causing damage to the leafy vegetable crops could be removed, the agricultural group would apparently be satisfied. The same would be true of each group having a specific complaint, such as that the beautiful landscape is obscured, or that smog causes smarting of the eyes.

This seeming incoordination is undoubtedly due to the lack of communication and understanding between all groups. We in medicine have been remiss in not communicating with the other groups until recently. We must now bring before the public and the other groups the fact that smog presents many possible insidious effects on the health of the human being. Since we can point to no specific cases of death due to smog, nor to any new diseases caused by smog, nor to any terrifying physical defects caused by smog, it is extremely difficult to arouse enough interest in the public in general, in other groups interested in smog abatement, in our legislators and many times in our own medical profession to support any research in the field of medical effects of smog. To stimulate interest is one of the major problems, since the expense of research of the kind needed is comparatively great and full interest and support of all groups is of utmost importance. The great majority of the public outside of the medical profession will have to be informed and educated as to the need for medical research on the smog problem. Everyone agrees that research in the field of water pollution was, and still is, quite necessary and that it has paid off in stopping water-borne epidemics, in halting the poisoning of fish and game, and in many other ways. If it is possible to show the